

AR22

1971
ANNUAL
REPORT

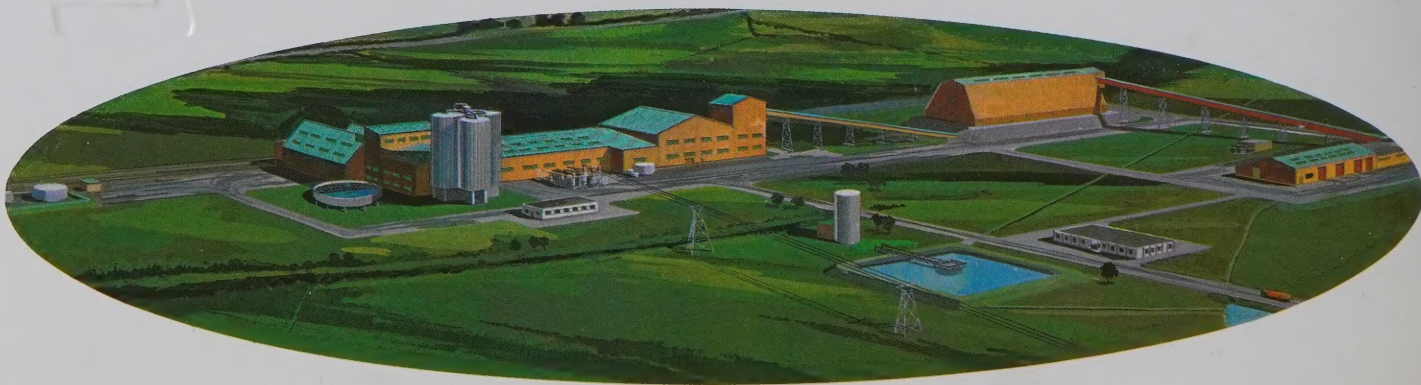
Sub
TARA

EXPLORATION AND DEVELOPMENT
COMPANY LIMITED



91

"An artist's impression of the proposed surface plant at the
Navan Zinc Mine, County of Meath, Ireland."



AR22

TARA

EXPLORATION and DEVELOPMENT
COMPANY LIMITED



INTERIM REPORT
TO
SHAREHOLDERS

FOR THE SIX MONTHS ENDED
JUNE 30th, 1971

Tara Exploration and Development Company Limited

Head Office: Suite 2601, Royal Trust Tower,
Toronto-Dominion Centre, Toronto 111, Ontario, Canada
Executive Office: 162 Clontarf Road, Dublin 3, Ireland

To the Shareholders:

Your Directors are pleased to submit the comparative financial statements of the Company for the six months ended June 30, 1971.

Since my last report to the shareholders, great strides have been made towards the establishment of a major mine at the zinc-lead orebody discovered by Tara in November last near Navan in the Republic of Ireland. Tonnage figures are now in excess of 20 million tons compared with the 10 million tons mentioned in my report of last April to shareholders. In addition, estimated average metal content has increased from 10 per cent combined zinc-lead to at least 11 per cent.

The Navan orebody has clearly demonstrated its potential as a major world source of zinc and even at this phase of the development program it can be said that the arrival of the Navan mine on stream will rank it as the largest zinc producer in Europe and amongst the four largest in the western world. The outlook for zinc is a world-wide pattern of long-term rising demand and a satisfactory price expectation.

Drilling is continuing to add steadily to the tonnage. Particulars of the latest 15 holes for which assays have been received, ranged in order of metal content, are as follows.

Intersection	Feet	Lead %	Zinc %	Combined %
232 - 257	25	0.72	5.81	6.53
220 - 305	85	0.94	6.83	7.77
234 - 299	65	1.22	7.02	8.24
370 - 675	305	1.98	7.23	9.21
466 - 586	120	1.71	8.73	10.44
405 - 720	315	1.87	8.66	10.53
112 - 137	25	1.43	9.52	10.95
35 - 75	40	1.48	9.93	11.41
433 - 609	176	1.82	9.66	11.48
433 - 738	305	1.80	9.69	11.49
387 - 568	181	1.91	10.19	12.10
270 - 315	45	1.44	11.30	12.74
289 - 354	65	2.27	14.04	16.31
391 - 646	255	4.92	15.35	20.27
438 - 698	260	4.18	16.74	20.92

The intersections of 305 and 315 feet are the longest assayed to date. The second last intersection listed is in a hole inclined at 79 degrees and is equivalent to a vertical intersection of 249 feet. The other holes listed are all vertical. These holes are in a continuing systematic pattern and are 100 or 150 feet apart from each other.

The ore continues to demonstrate the satisfactory features already mentioned in my April report, viz., the five-to-one predominance of zinc over lead, freedom from oxidation and amenability to the conventional flotation process to yield separate zinc and lead concentrates of good marketable quality.

Tara Mines Limited, the Company's wholly-owned Irish subsidiary which will operate the mine at Navan, has already embarked on the necessary studies and planning activities connected with the development of the mine and ancillary facilities. Recruitment of senior operating personnel has already commenced and these will be based at the company's offices in Navan Town, one mile from the orebody. The feasibility study being carried out by Canadian Bechtel Limited is proceeding satisfactorily as well as specialist studies in relation to the reconciliation of farming, urban and amenity interests with the Company's mining activities.

Acquisition of land is proceeding satisfactorily and already purchase arrangements have been completed in respect of a substantial area in and around the mine site. Negotiations are in hand for the purchase of the balance of the Company's land requirements, taking into account the flexibility which the engineering alternatives allow. These transactions are in respect of the surface rights only, the mineral rights being vested in the Minister for Industry and Commerce. The Minister has recently increased the area in respect of which he has undertaken to grant a state mining lease to Tara under the Minerals Development Act, 1940, and the total area covered by the Minister's undertakings now extend over 17 central townlands totalling some six square miles in extent and under three of which ore has already been proved to exist.

Tara's acquisition of approximately eight per cent of the issued shares of Northgate Exploration Limited has forged a strong link with an Irish-inspired expansion into the field of international mineral activity. Foremost in this link is the exposure given to Tara through Northgate of wider exploration, reaching into Europe, North America and Australia and encompassing a wide range of minerals including nickel and gold.

Your Company's direct exploration continues to concentrate on the area where experience and success has already been gained, the Republic of Ireland, conscious that only a persistent, expert and wide-ranging team is likely to achieve success at this advanced stage of Ireland's mining revival. In Waterford and Wexford, 134 square miles of joint licence area and 219 square miles of Tara's solely held licences are subject of participation agreements whereby Amax of U.K. Inc. is currently carrying out extensive surveys, including airborne geophysics.

In recognition of the interest of the shareholders and the investment community, Tara Exploration and Development Company Limited obtained listing on the Toronto Stock Exchange in June, 1971.

Discussions are proceeding for the provision of bridging finance which may be required prior to completion of the feasibility report and senior financing arrangements. No difficulties are anticipated in securing these funds.

On behalf of the Board of Directors,

MICHAEL McCARTHY,
President.

August 24, 1971.

Tara Exploration and Development Company Limited

AND ITS WHOLLY OWNED SUBSIDIARY TARA MINES LIMITED

CONSOLIDATED STATEMENT OF SOURCE AND APPLICATION OF FUNDS

FOR THE SIX MONTHS ENDED JUNE 30, 1971

(With comparative figures at June 30, 1970)

SOURCE OF FUNDS:	1971	1970
Interest and other income	\$ 47,700	\$ 13,258
Issue of shares	2,929,593	—
	<u>2,977,293</u>	<u>13,258</u>
APPLICATION OF FUNDS:		
Exploration, development and administration expenditures	515,130	110,538
Property plant and machinery	1,534,940	1,370
Advances to Smelter Corporation of Ireland Limited ..	34,848	—
	<u>2,084,918</u>	<u>111,908</u>
Increase (decrease) in working capital	892,375	(98,650)
Working capital, beginning of the period	920,236	330,320
Working capital, end of the period	<u>1,812,611</u>	<u>231,670</u>

CONSOLIDATED SCHEDULE OF DEFERRED EXPENDITURES

FOR THE SIX MONTHS ENDED JUNE 30, 1971

(With comparative figures at June 30, 1970)

EXPLORATION AND DEVELOPMENT:	1971	1970
Mining		
Salaries and wages	\$ 14,827	\$ 13,081
General exploration	11,637	34,362
Diamond drilling	343,703	32,622
Assaying	33,974	—
Maps and drafting	5,412	4,146
Travel and transportation	8,213	3,942
	<u>417,766</u>	<u>88,153</u>
Oil participation expenditures	426	412
	<u>418,192</u>	<u>88,565</u>
Administration		
Rent and office expense	13,091	8,548
Professional fees	9,313	4,275
Shareholders' information and public relations	30,798	6,717
Share transfer expenses	6,164	206
Toronto Stock Exchange listing fees and expenses	17,954	—
Travel	17,622	1,916
Miscellaneous charges	1,996	311
	<u>96,938</u>	<u>21,973</u>
Total expenditures	<u>515,130</u>	<u>110,538</u>
DEDUCT		
Interest earned	39,473	8,183
Share of net income from oil participations	8,227	5,075
	<u>47,700</u>	<u>13,258</u>
DEFERRED EXPENDITURES (net) for the period	<u>467,430</u>	<u>97,280</u>

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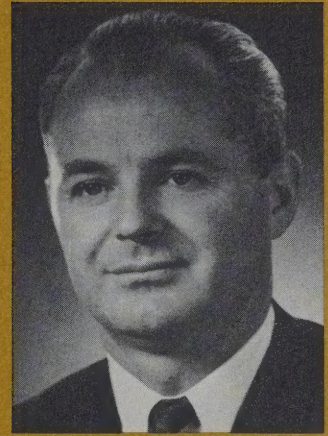
OUR COVER DESIGN

Navan zinc-and-lead-bearing drill core cut, polished and enlarged fourfold by photography provides the pattern. The widespread zinc mineral, sphalerite, shows brown and the lead mineral, galena, shows grey.





Michael McCarthy,
President



PRESIDENT'S REPORT TO THE SHAREHOLDERS

Your Directors are pleased to submit the Annual Report of the Company which includes the audited consolidated financial statements for the year ended 31st December 1971 and the General Manager's Review.

Nineteen seventy-one has been a year of significant progress in the transition of the Company's 1970 Navan discovery to a major zinc deposit and the consequent forward planning of the engineering, financing and development of the mine for large scale production.

Since the publication of our last Annual Report, a considerable number of drill holes have been completed on the Navan property, adding both to the tonnage and knowledge of the deposit as well as to its economic potential.

In total, some 300 holes have now been drilled in the main mineralized area of approximately 2,000 feet by 5,000 feet. Zinc continues to be the dominant metal contained in this deposit, the ratio to lead being approximately 5:1 over the bulk of the ore drilled.

As summarized in the Company's Semi-Annual Report dated 24th August 1971, wherein it was noted that the tonnage was already "in excess of 20 million tons", activities were broadened to include the necessary studies and planning connected with the development of the mine and ancillary facilities.

In the latter part of 1971, it had become increasingly evident that there was sufficient zinc ore in the ground to sustain production on a large scale over a very considerable period.

While this intensive drilling program continued to obtain the general pattern of mineralization surrounding and deeper southwestwards from the main closely-drilled ore, emphasis shifted to more detailed studies of the marketing of concentrates and, within this context, the most effective scale of mining operations.

The pattern of closer-spaced drilling was also somewhat extended to allow detailed studies of the initial years of mining.

ORE RESERVES

A report entitled "Report on the Ore Reserves of Navan Mine, County Meath, Ireland" dated 13th April 1972 has been received from Dr. B. S. W. Buffam, Consulting Geologist, of James and Buffam, Toronto.

Dr. Buffam, on the basis of the surface drilling completed at 15th March 1972, reported that the Navan deposit contained 51,945,000 short tons of total ore in sight.

While the Review of the General Manager contains further particulars of Dr. Buffam's report including the parameters used in the present tonnage and grade calculations, it is appropriate that the categories of ore comprising the foregoing total reserve figure, and the contents of lead (Pb) and Zinc (Zn) in the tonnages referred to, be repeated here by way of quotation of the principal table in the summary to Dr. Buffam's Report:

	Tons	Grade	
		%Pb	%Zn
A. Well established	21,385,000	2.44	11.71
Indicated	5,808,000	2.16	10.76
Total A	27,193,000	2.38	11.51
B. Potential ore	24,752,000	2.62	10.06

Total ore in sight (tons) 51,945,000

The annotated plan on page 17 shows the areas of the main mineralized zone used in calculating the above mentioned ore reserves.

Further excerpts from Dr. Buffam's Report include the following pertinent comments:

"The Navan orebodies that are currently being explored and developed consist of a number of large tabular mineralized lenses enclosed within a horizon of relatively massive limestones."

"The ore mineralization consists of an intimate mixture of generally fine grained sphalerite and galena which has been concentrated in tabular masses within the Pale Beds. The ore is usually sharply defined and at the edges of an ore shoot the mineralization decreases abruptly below limits of 3.0% to 5.0% combined lead and zinc."

The extent of reserves of mineral in the ground ensure that mining at Navan will continue for more than twenty years.

Our investigations of the marketing of these high quality concentrates and engineering studies already made, indicate that these reserves are adequate to support an annual output in the order of 400,000 tons of zinc concentrate and 70,000 tons of lead concentrate.

Duration of mining beyond the period needed for commercial viability is a matter of vital interest not only to the Company but also to the local community. Mine life is dependent on maintaining operating and other attendant costs at levels that will enable the eventual working of lower grade and deeper lying minerals.

Engineering and Feasibility Studies

Engineering studies of all aspects of production from the Navan deposit are being carried out by our wholly-owned Irish subsidiary, Tara Mines Limited, in conjunction with experienced consultants. Canadian Bechtel Limited have carried out the principal feasibility study on mining and milling the ore reserves shown by the Company's drilling and Dr. Buffam's reserve calculations. They have examined a number of alternatives leading to economically viable mining programmes but based on different types and sequences of mining. Their principal conclusions are currently being assembled for the consideration of your Company.

The characteristics of the orebody allow alternatives in the method and sequence of mining from which the Company could select in the event of delay in conclusion of the Court

proceedings relating to the ownership of minerals under lands over or near a part of the Navan deposit. These Court proceedings are referred to in Note 5 to the financial statements on page 22 of this Report.

In addition to earlier metallurgical testing by Tara Mines Limited at the Tynagh laboratory of Irish Base Metals Limited, further extensive flotation test work has been carried out at The Galigher Company in Utah and Lakefield Research Laboratories in Ontario. The testing confirms that the zinc and lead sulphide minerals are amenable to satisfactory recoveries of zinc concentrate and lead concentrate by conventional differential flotation process.

MARKETING

The market for zinc concentrates and zinc metal is obviously of great importance to your Company, particularly during the earlier years. For that period, our considered opinion is that



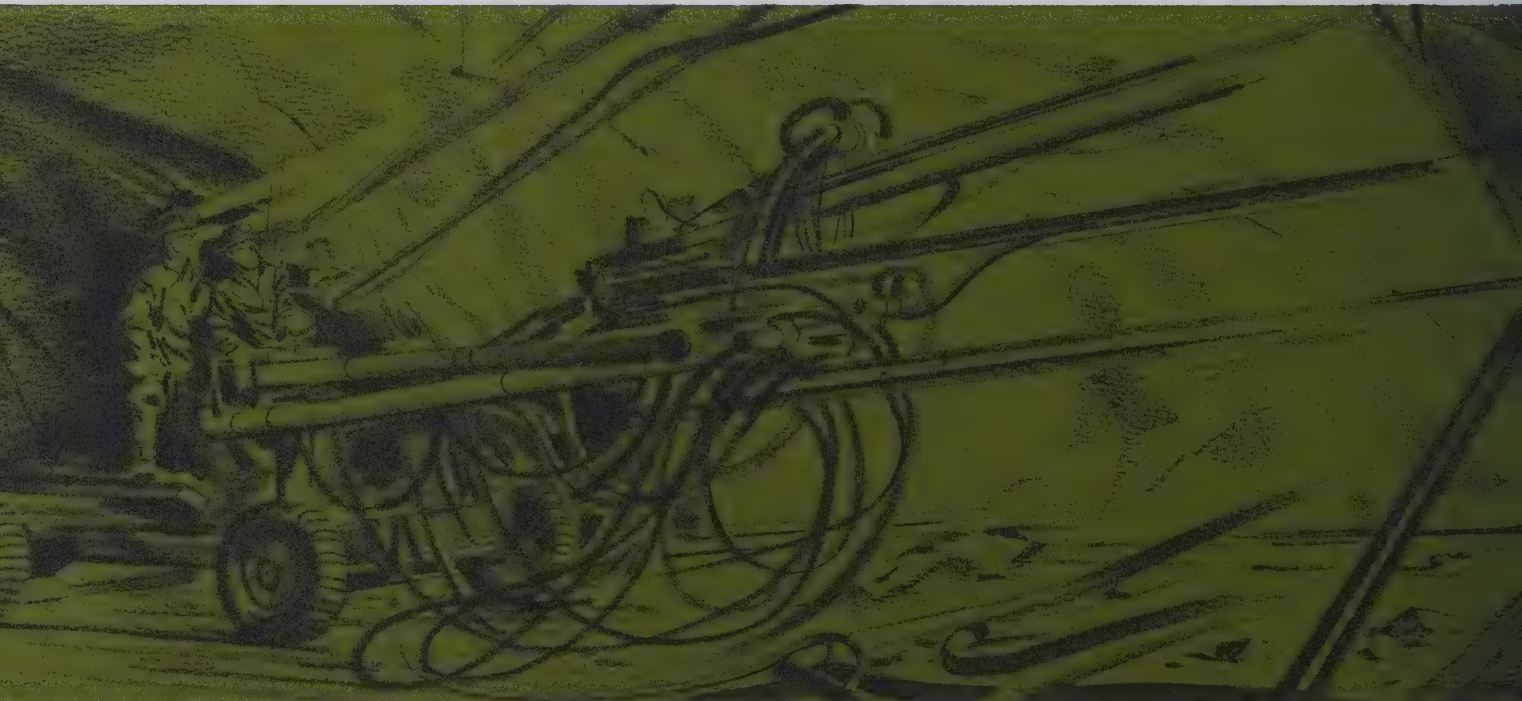
the market will be fairly buoyant. Notwithstanding this, a realistic appraisal of long term marketing must recognize that zinc, like all key base metals, must compete internationally on a basis of price, supply and demand. Therefore, it is in the best interests of both Tara and Ireland that mining operations be timed to coincide with this period of good demand having regard to other potential sources of future supply.

One natural outlet for our concentrates and the metal derived from them is in the large and steadily growing consuming area of Western Europe and particularly in the Common Market which Ireland has elected to join in 1973. Our principal discussions have been with

European smelters, both of zinc and lead. However, other consuming areas have not been excluded from our considerations.

Our zinc concentrates have been particularly attractive to potential purchasers since the results of extensive testing have shown that, consistent with a 90% recovery of zinc from ores mined, we can produce concentrates with the particularly high content of 56% zinc and a low content of iron. Such concentrates are very suitable for production of zinc metal by the electrolytic reduction process, including the Special High Grade Zinc which is in growing demand.

Metallurgical tests have also shown that 82% of the lead in the ore can be recovered in concentrates which have a content of 62% lead, a figure which is, of course, well above commercially acceptable limits.



There is no zinc refinery in Ireland at present but our marketing arrangements will not preclude the sale of zinc concentrates to an Irish refinery. Considering Ireland's resources in zinc minerals, its proximity to world trade routes and the European market, and its generally expressed desire for industrial expansion, we have no doubt that a zinc refinery will be built in Ireland when and as it is shown to be economically viable.

Your Company actively supports the investigations of Smelter Corporation of Ireland Limited (owned jointly with Northgate Exploration Limited) which maintains its detailed studies on this matter.

TRANSPORTATION AND SHIPPING CONSIDERATIONS

Transport, sea port and shipping facilities are a separate sector of the engineering which has also been studied in detail. Agreement has been entered into with the Drogheda Harbour Commissioners whereby a suitable jetty and associated loading facilities can be constructed at the mouth of the River Boyne, 20 miles from the mine site. The proposed jetty

could handle vessels of the size normally used for bulk cargoes to Western European ports. Close estimates of the cost of surface haulage from the mine and shipment from the port have been obtained.

MINING LEASE AND LAND ACQUISITIONS

Discussions are continuing with the Department of Industry and Commerce on the issuing of a State Mining Lease over an area around the Navan orebody to include the six square miles in respect of which the Minister has already given undertakings to grant to Tara a State Mining Lease.

Land purchases at and around the Navan orebody proceeded throughout the year. Owing to the large land requirement of the project and because the land purchased included both good farmland, several residences and potential development land outside the town of Navan, this land acquisition was a substantial part of the expenditures of Tara Mines Limited during the year.

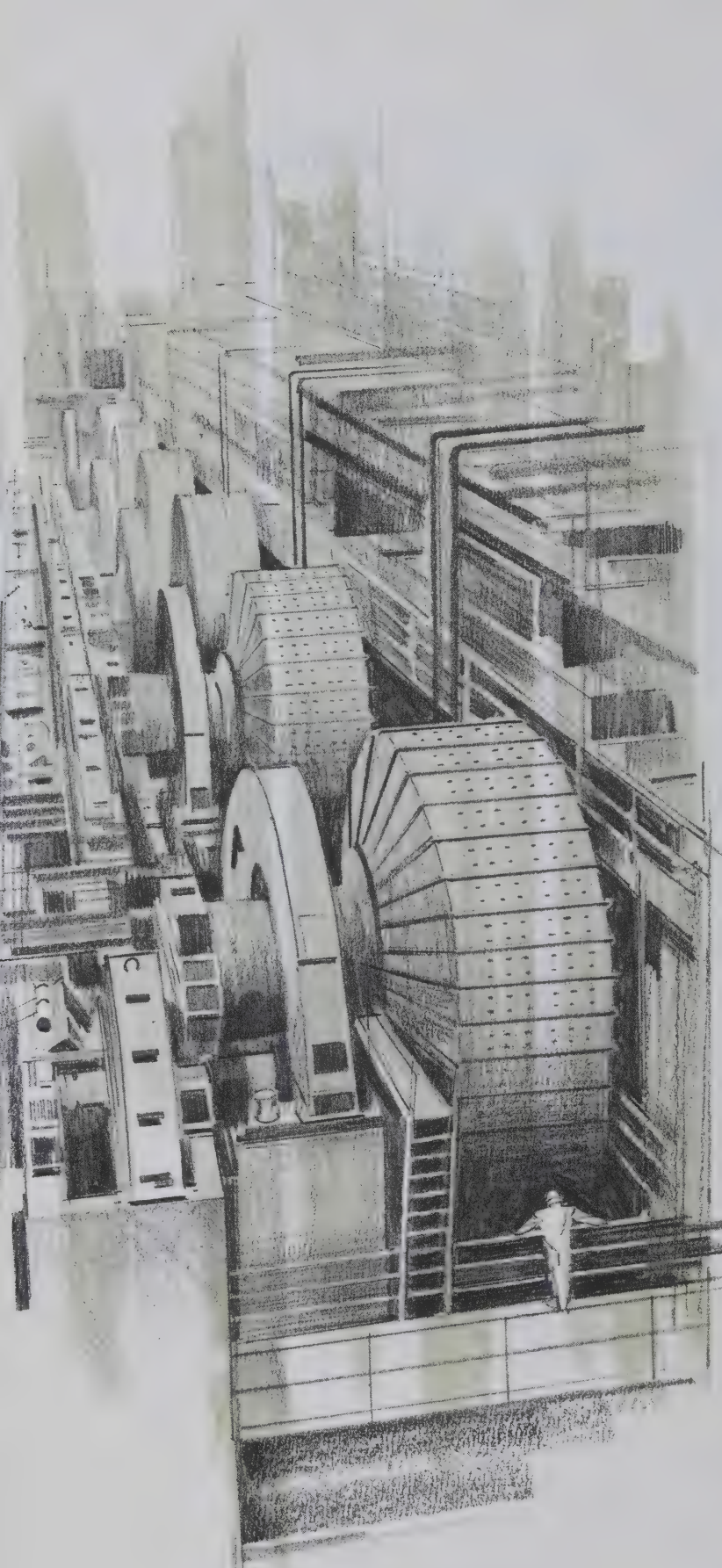
FINANCIAL

Under the terms of an underwriting and agency agreement entered into in 1970, your Company received \$2,929,053 from the sale of 582,520 treasury shares during the first half of 1971. The sale of shares under that agreement was thereby completed.

A major investment of Irish capital was made in your Company in April 1972, by Fitzwilliam Resources Limited, an Irish private corporation owned by a consortium of Irish investors headed by Mr. A. J. F. O'Reilly and Fitzwilliam Securities Limited. Their offer to purchase 350,000 treasury shares under private placement agreement for a cash consideration of \$5.6 million was accepted by the Board of your Company subject to approval of the regulatory Authorities which was subsequently obtained. This transaction will be completed on 8th June 1972.

The investment by Fitzwilliam Resources Limited in your Company (in which they consequently have an approximate 6% equity interest) broadens the capital base of your Company for the senior debt financing.





As a result of this post Balance Sheet transaction and excluding the exercise of employees' stock options, the issued capital of the Company will be 5,816,673 shares.

At the forthcoming Annual and General Meeting, shareholders will be asked to vote on a special resolution passed by the Board of Directors on 19th April 1972, to increase the authorized capital to \$7,000,000 by the creation of a further 1,000,000 shares with a par value of \$1 each.

The increase is considered advisable in order to provide for an expansion of the existing employees' stock option plan. The Company has no plans for the issue of the balance of these newly created shares.

Under the existing plan, options can be granted to officers and other key employees of the Company at prices within the range permissible by the appropriate regulatory bodies.

In furtherance of this special resolution, shareholders will also be asked to vote on the amendment of the employees' stock option plan to increase the number of shares available under the plan from 100,000 shares to 250,000 shares. In addition, the effective period for the issuance of options has been extended from the existing five year term to ten years.

This amendment recognizes the predictable increase in the number of persons eligible for such stock options as a result of the expansion of the Company's operations.

ORGANIZATION

Subject to the approval by shareholders of a Special By-law increasing the number of directors of the Company from seven to twelve, the following have accepted the Company's invitation to join the Board and are therefore nominees for election at the forthcoming Annual and General Meeting.

DR. OLIVER C. WALDRON

In April 1972, Dr. Waldron was appointed Vice-President and Deputy General Manager of the Company. He commenced his duties during May and has the particular responsibility of co-ordinating the rapid and effective development of the Navan project.

Dr. Waldron was born in Cork, Ireland and graduated from University College, Cork, in mathematics and physics. He then studied at Oxford University where he was a Merton scholar and obtained a D.Phil. in nuclear physics. He joined the Anglo American Corporation Group in 1968 functioning in various capacities, most recently as Vice-President in charge of exploration and mine development with Anglo American Corporation of Canada Limited which he left to take up his appointment as a senior executive of your Company. ~~CONFIDENTIAL~~

MR. ANTHONY J. F. O'REILLY

Irish born, Mr. O'Reilly graduated from University College, Dublin and subsequently qualified as a solicitor. He is presently senior Vice-President and a member of the Executive Committee of H. J. Heinz Co. of Pittsburgh, U.S.A. Since 1969 and prior to his present appointment with the parent company, he was Managing Director of the U.K. subsidiary, H. J. Heinz Company Limited.

His earlier business career included the position as Managing Director of the Irish Sugar Company and its subsidiary Erin Foods Limited, and General Manager of Bord Baine (Irish Dairy Products Marketing Board).

MR. MATTHEW GILROY

Mr. Gilroy, a founder director of the Company in 1953 and a Vice-President since 1964, is a nominee for re-election to the Board. He is also Vice-President and a Director of Northgate Exploration Limited.

MR. HUGH MURPHY AND MR. PATRICK J. MURPHY

Messrs. Hugh and Patrick J. Murphy, both born in County Armagh, Ireland, founded the Murphy Bros. Limited Group of Companies of Leicester, England, with activities including opencast mining, engineering, transport, haulage and public works. In late 1968 they sold a portion of their interests to The British Electric Traction Company, Limited.

Messrs. H. and P. J. Murphy reside in Ireland and are presently on the Board of Tara Mines Limited.

Your Company has been fortunate that in both the preceding matters, the foregoing nominations and the private placement financing with Fitzwilliam Resources Limited, the achievement of broadening its financial, managerial and technical base has coincided completely with its policy of maximizing the use of Irish expertise and resources in the development of the Navan ore deposit.

Also during the year, Mr. Richard F. Down was appointed Manager of Tara Mines Limited and Mr. William Dallas was appointed Conservation Manager for the Navan project. Both are located in the Company's mine administrative office and information centre, Railway Street, Navan.

Prior to his appointment with Tara Mines Limited, Mr. Down was Manager of Metallurgy with Irish Base Metals Limited and Gortdrum Mines (Ireland) Limited. He was previously with Hudson Bay Mining and Smelting

Co., Flin Flon, Canada, as Research Technician from 1948 to 1955, and to 1963 was Assistant Mill Superintendent at Tsumeb Corporation, South Africa. Mr. Down graduated from University College of Swansea, with a B.Sc.(Hons.) in metallurgy.

Mr. Dallas graduated with a B.A. and Agr.(Forest) B. degrees from Trinity College in 1954 and having received a Kellogg Foundation Fellowship, spent one year in Oregon State University where he received his Master of Forestry Degree in 1960. Prior to joining Tara Mines Limited, he was Chief Conservation Officer with the Ministry of Agriculture, Northern Ireland where he was engaged in a great variety of activities ranging through the general forestry field, development of management planning methods for forestry development and conservation of forest recreational areas.

OUTLOOK

For Tara, the prospect of the development of the Navan orebody presents a challenging and rewarding opportunity — for Ireland it presents a substantial contribution to the economy. In the latter context it is worthwhile to note that the annual value of exports from the Irish mining industry has increased from £4 million in 1966 (with the start-up of the Tynagh Mine), to £20 million in 1970, and with the advent of production from the Navan mine this could attain a level of over £30 million in 1975-76.

Ireland's mining industry is still a fledgling one by comparison with the major mining countries of the world. However, properly encouraged, this industry can contribute significantly to Ireland's industrial development and can substantially enhance her competitive position within the European Economic Community.

To ensure that this promise will be fully realized it will require the continued and concerted effort of Government, administration, mining industry and community working together.

GENERAL

Although the Navan project properly takes the major place in this Annual Report, it must be stressed that your Company is and intends to remain active in the mineral industry generally and with particular reference to Ireland.

Our experience in Ireland over the last ten years, with exploration culminating in the Navan discovery, gives us every encouragement to continue that exploration. It is doing so and the scope of the programme is outlined in the General Manager's Review.

Northgate Exploration Limited, in which your Company holds 501,714 shares equal to an approximate 8% interest and is the largest individual shareholding, owns (through its wholly owned subsidiaries, Irish Base Metals Limited and Gortdrum Mines (Ireland) Limited) the lead-zinc-copper-silver producing mine at Tynagh, County Galway, and the copper-silver-mercury producing mine near Tipperary, County Tipperary, both in the Republic of Ireland. Northgate also owns an approximate 4% interest in Avoca Mines Canada Limited.



Northgate's principal affiliated companies, Westfield Minerals Limited and Whim Creek Consolidated N. L., indirectly provide your Company a participation in widespread exploration in many separate geographic areas throughout the world, mainly in Greenland, Canada and Western Australia. Each of these exploration affiliates of Northgate are independently funded for their respective programmes and activities. In addition, Northgate, through its Irish subsidiary, Irish Base Metals Limited, is participating in the ongoing oil and gas exploration programme being conducted by Hibernian Oil & Gas Limited in the Continental Shelf area to the south and west of Ireland.

Your Company's substantial share ownership in Northgate Exploration Limited is a valued major asset.

Avoca Mines Canada Limited, in which your Company owns 250,000 shares equal to an approximate 4% interest (identical to the separate share block held by Northgate) has through its wholly owned subsidiary maintained operations at the Avoca copper mine in the Republic of Ireland. The treatment rate at the Avoca mine has been increased to 3,000 tons per day.



Your Company, under agreements with Pinnacle Petroleum Limited, maintains its petroleum interests in Alberta and Saskatchewan, Canada.

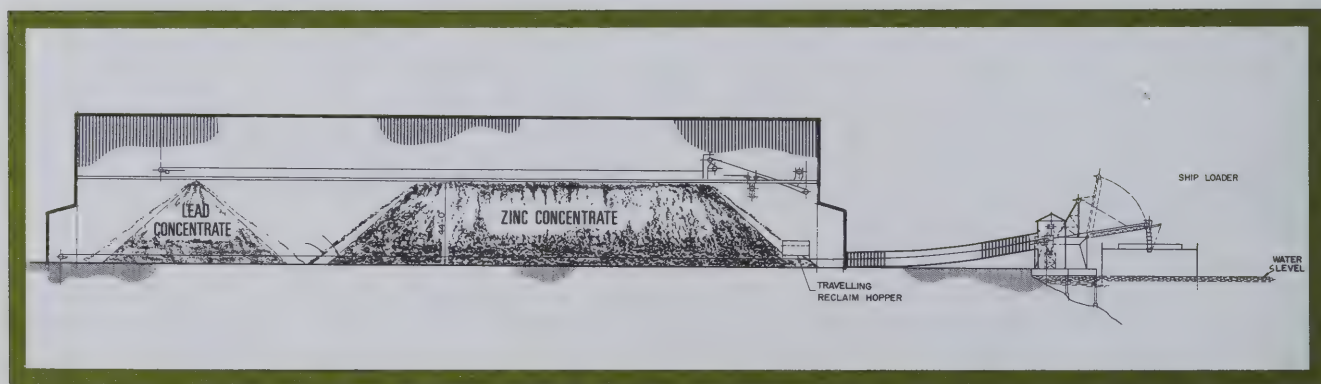
A listing on the Toronto Stock Exchange was granted in June, 1971. The Company through its Irish bankers, is preparing an application for listing on the Irish Stock Exchange, Dublin.

Your Board of Directors has pleasure in putting on record its appreciation of staff, consultants and contractors who, reflecting the rapidly widening interests of the Company. They collectively represent an increasingly wide range of geological, engineering, administrative and other skills, working effectively in furtherance of the Company's objectives.

On behalf of the Board of Directors,

"MICHAEL McCARTHY",
President.

30th May 1972.



Murrogh OBrien,
*Executive Vice-President
and General Manager*



GENERAL MANAGER'S REPORT TO THE SHAREHOLDERS

Follow-up of Tara's 1970 zinc ore discovery proceeded throughout 1971, and into 1972, showing the great extent of the orebody referred to in the President's Report; further details are set out below.

The geological characteristics of the extensive Navan occurrence, set amongst limestone strata, both assure production from that site for decades to come and add further encouragement that the similar rocks in Ireland could possibly yield further base-metal discovery if long term intensive prospecting is maintained.

Therefore, this review of Tara's work in drilling at Navan and exploration elsewhere through Ireland must be seen as part of a long-term programme. At Navan, the programme is rapidly moving on to further stages and the drilling is increasingly complemented by the engineering studies preliminary to physical preparation for mining. The exploration programme through other parts of Ireland, although it will continue to pursue the same objectives over the years, must constantly adapt itself to developments in the scientific understanding of the type of mineral bodies being sought and adapt itself too, to the changing techniques available to the exploration geologist.

The Drilling at Navan

Drilling at Navan in 1970 had been to ascertain if indications obtained from surface prospecting really reflected mineralization in the ground. In this exceptional case, the first borehole achieved that result. Continuing drilling was to find if the mineralization had at least the minimum extent and metal content to qualify it as ore, material that could be mined at a profit. During 1971, drilling was accelerated — by the end of the year eight drills were at work — so that for the engineering and financial planning of a productive mine there could be sufficiently precise information on the quantity, quality and disposition within the rocks of the ore that was likely to be extracted in the first decade or two of the mine's life.



Dr. B. S. W. Buffam, Consulting Geologist, was engaged to make an independent calculation of the tonnage and grade of ore disclosed by the drilling. In the summary to his report of April 13, 1972, Dr. Buffam, on the basis of the surface drilling completed at March 15, 1972, gave the following table as summarizing the result of the principal calculation embodied in his report:—

	Tons	Grade	
		% Pb	% Zn
A. Well established	21,385,000	2.44	11.71
Indicated	5,808,000	2.16	10.76
Total A	27,193,000	2.38	11.51
B. Potential ore	24,752,000	2.62	10.06
Total ore in sight	51,945,000 tons		

Note: Pb = lead; Zn = zinc.

Dr. Buffam's Report shows that he calculated the Well Established and Indicated categories for the drilled part of the orebody lying between Section 8+50W and 24+50W, that is to say in the zone ranging from 850 ft. west of a reference line to 2,450 ft. west of the same reference line. He calculated the Potential Ore category for the drilled part of the orebody lying between Section 24+50W and 44+00W, that is to say in the immediately adjoining zone ranging from 2,450 ft. west of the above-mentioned reference line to 4,400 ft. west of the same reference line.

Dr. Buffam defined the categories of ore thus:—

"Well established within 50 ft. of a drillhole.

Indicated from 50 to 100 ft. from a drillhole.

Potential Ore: Estimate based on rectangular block surrounding each drillhole in the area 24+50W to 44+00W."

The maps and plans submitted by Dr. Buffam with his Report show that the Well Established and Indicated categories (see Table "A" above) were calculated from the assayed results of 201 boreholes. For 109 of those boreholes, the depth, length and zinc-lead contents of the principal intersections were publicly released before or during your Company's last Annual General Meeting and, for a further 57 of them, similar particulars were publicly released on various dates up to October 29, 1971. The remaining 35 holes in this group were completed as to drilling and assaying at later dates.

When deciding the effective limits of useful mineralization in each particular borehole a measure of judgment is involved, based both on the individual assays and on the emerging geometry of the nearby parts of the orebody. Therefore, the effective intersections publicly released by the Company from time to time are not necessarily always identical with the intersections selected as bases of calculation by Dr. Buffam. The Company's published figures, while quite compatible with those of Dr. Buffam, had on a number of occasions given intersections which were longer but of a lower average metal content than the intersections adjudged appropriate by Dr. Buffam as bases for his calculations. In that context Dr. Buffam reported that "A cut-off grade of 3% to 5% combined lead-zinc was used in delimiting the boundaries of the ore blocks. Occasionally low-grade narrow sections of ore, below 3% combined, were included when they occurred within large blocks of ore if it was considered that these sections could not be profitably discarded during mining."

Further defining his methods of calculation, Dr. Buffam wrote:—

"Ore was not extended beyond a distance of 100 ft. when a hole was situated at the extreme limits of ore blocks (except in the Potential Ore area). Straight line boundaries between intersections were used throughout."

"The specific gravity of an intersection was determined by calculating the average of all the individual assays given in the log of a hole and then reading from a graph prepared from a number of known determinations the cubic feet per ton for this intersection. This method results in a slightly reduced average grade

and tonnage than when each sample is calculated separately. However, to offset this slightly lower tonnage and grade, no allowance for dilution was used in the present estimates."

The maps and plans with Dr. Buffam's Report of April 13, 1972, where they refer to his category of Potential Ore, show that the average grade for that category was calculated from the assayed results of 33 boreholes additional to those mentioned above. All of those 33 holes were completed as to drilling and assaying subsequent to the above-mentioned public release of drilling information on October 29, 1971.

Possibilities of additional ore are dealt with by Dr. Buffam in a section of his Report which reads:—

"Eleven holes have been drilled on the Navan property to the south and west beyond the limits (8+50W — 44+00W and 5+00S — 30+00S) considered in this Report. Ore intersections have been obtained in nine of these holes, but in this Report they have not been appraised with regard to their significance to the overall status of the property's worth. It is unlikely that the ore indicated by this drilling will contribute to the profits of the Company in the near future, but they are undoubtedly a plus factor in the long range potential of the deposit."

Of the holes completed by 15 March, 1972, 201 were used by Dr. Buffam in calculation of "Well Established" and "Indicated" ore and a further 33 were used by him in calculation of "Potential" ore. The results of his calculations, quoted earlier in this Review, give in authoritative form the effect of all that drilling and therefore the individual results of the holes are not set out here. A plan shows the areas within which were drilled, both of those groups of holes and also all additional drilling to April 30, 1972.

Continuing Irish Exploration Programme

The opportunities for further base metal discovery in Ireland had been recognized by your Company in 1962 and have been followed by it consistently ever since. The finding of the Navan orebody is an outstanding result of the effort of ten years of search. And it is a particular justification for continuing the search.

This the Company has done throughout 1971 and into 1972 on the basis that such search must be extended for a number of years into the future.

In the competitive area of Irish Prospecting your Company is particularly well placed to make effective use of these exploration opportunities. It has a team of Geologists and fieldmen with experience gained around the world but especially in Ireland. They have confidence strengthened by finding the Navan ore.

1,459 square miles are held by Tara in 125 exclusive prospecting licences distributed through 14 of the 26 counties of the Republic of Ireland (13 licences have been surrendered during 1971 and 8 new licences issued to the Company).

Additionally 178 square miles are held by Tara as joint licensee, having interests varying from 25% to 50% with others in 16 further prospecting licences. These extend the Company's interest into two further counties.

A table in this Report sets out the position at December 31, 1971 for all the joint licences as well as the 125 licences held solely by your Company, or, in the case of licence 1661 (Navan area) held on its behalf by its wholly owned Irish subsidiary Tara Mines Limited.

Arrangements were made with the agreement of the Department of Industry and Commerce, Dublin, for the transfer of Licences 1380 and 1489 (west of and around Navan) to Tara Mines Limited, our subsidiary concerned with the Navan Project.

For the remainder of the licences listed, and again with the agreement of the Department of Industry and Commerce, arrangements were made for the assignment of the parent company's interest to another wholly owned Irish subsidiary, Tara Prospecting Limited, which is charged with the duties of all Irish prospecting other than the 29 square miles at and around Navan.

Tara Mines Limited and Tara Prospecting Limited have available to them the personnel who hitherto were engaged in exploration with direct responsibility to your Company. They also have access to all the relevant records. There is therefore no break in the continuity of the 10 year old Irish exploration effort.

**Tabulation of Prospecting Licences Held by the Company at December 31, 1971
(including 16 Licences Jointly Held with Other Companies):**

	Licence Nos.	County	Approx. area: square miles		Licence Nos.	County	Approx. area: square miles
	2	Galway	4		777	Tipperary/ Limerick	10
	15, 16, 18	Galway	30			Limerick	12
	22, 23	Galway	23		778	Limerick	17
(a)	405	Waterford	12		786-787	Limerick	15
(b)	415	Wicklow	11		922	Limerick	14
	427	Limerick/ Tipperary	11		823	Limerick	15
	449, 450	Limerick	23		924	Longford/ Westmeath	15
	465, 466	Tipperary	16		925 (merged with 776)	Waterford	12
(c)	497	Galway	10	(a)	926	Monaghan	12
(d)	504	Waterford	12		1169	Meath	51
(a)	532	Waterford	12		1170-1174	Meath/Offaly	18
	546, 547	Mayo	24		1177, 1178	Westmeath	46
	601-614	Tipperary/ Offaly	171		1179-1181	Wexford	219
	615-617	Laois	40		1182-1201	Mayo	16
	618	Offaly	12		1207	Kildare	40
	619-622	Westmeath/ Longford	45	(a)	1208-1211	Waterford	61
	623-625	Offaly/ Westmeath	35	(e)	1220-1225	Tipperary	16
	626-628	Tipperary	34	(c)	1234	Galway	7
	629-630	Clare	27		1235	Galway	13
	728	Tipperary	4		1241	Longford	17
	729-731	Mayo	34		1358	Limerick	12
(a)	735, 736	Waterford	25		1359	Meath	16
	754	Laois	14		1380	Westmeath	4
	755-758	Sligo	53		1381	Galway	10
	763	Galway	14		1382	Westmeath	24
	767-770	Galway	52		1405, 1406	Mayo	45
	773	Offaly	3		1484-1486	Limerick	20
	774	Offaly/ Tipperary	11		1487, 1488	Meath	11
	775	Tipperary	16		1489	Meath	42
	776	Tipperary	16		1499, 1500	Galway	26
					1569, 1570	Tipperary	14
					1571	Sligo	6
					1660		
					1661 (Tara Mines Ltd.)	Meath	2

Notes to Table:

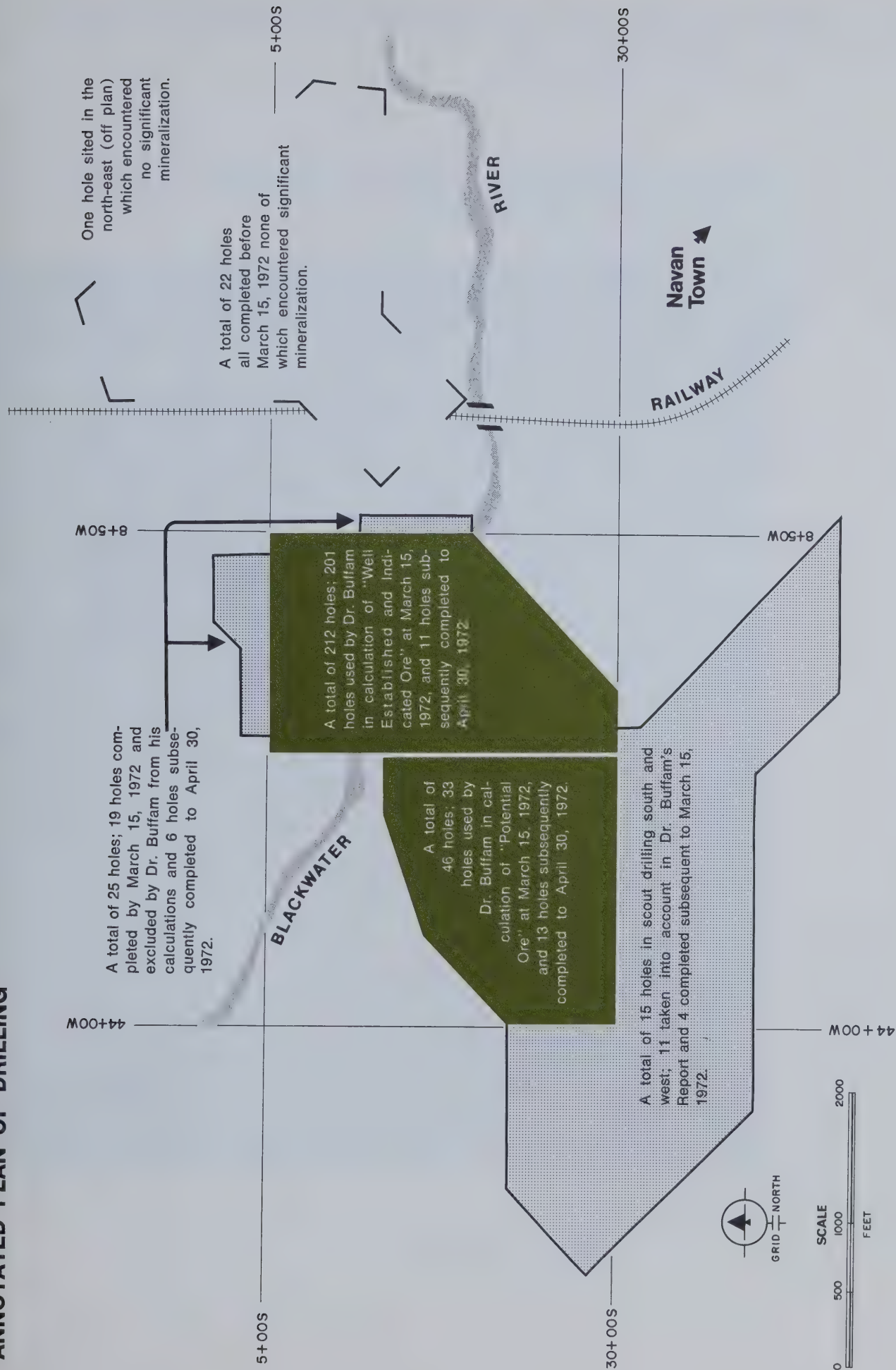
At December 31, 1971 certain Licences were in the course of renewal.

- (a) 50% interest, held jointly with Anglo United Development Corporation Limited.
- (b) 25% interest, held jointly with Enfer Holdings Limited, Irish Base Metals Limited (both Northgate Exploration Limited subsidiaries) and Anglo United.
- (c) 50% interest, held jointly with Irish Base Metals.
- (d) 33⅓% interest, held jointly with Irish Base Metals and Anglo United.
- (e) 50% interest, held jointly with Enfer Holdings Limited.

For the parts of areas flown by the Barringer Input system under an Agreement between the Company, Barringer Research Limited and Wakanda Explorations Limited, the latter shall be entitled to receive 2½% (in respect of Licences 18, 22, 23, 729-731), and 5% (601-630, 755-758, 763, 767-770, 773-777) of the vendor consideration in any new company which may be formed to develop economic mineral deposits found as a result of survey in the areas selected for airborne study.

May 30, 1972 *IN FULL PAYMENT OF THE DEBT DUE BY TARA MINES LTD. TO* MURROGH V. O'BRIEN

ANNOTATED PLAN OF DRILLING



LOCATIONS OF ALL 321 BOREHOLES DRILLED AT NAVAN TO APRIL 30, 1972

(Incorporated under the laws of Ontario)
and its wholly owned subsidiary companies

CONSOLIDATED BALANCE SHEET — DECEMBER 31, 1971

with comparative figures at December 31, 1970

(Expressed in Canadian dollars)

ASSETS	1971	1970
Current Assets		
Cash, including term deposits	\$ 879,714	\$ 1,014,629
Accounts receivable	37,420	21,089
Prepaid expenses	3,177	4,020
	920,311	1,039,738
Investments at cost		
Northgate Exploration Limited (note 3)	4,339,826	
Other companies (note 4)	373,471	334,754
	4,713,297	334,754
Fixed Assets at cost		
Surface rights, buildings and equipment	3,656,927	36,953
Other Assets and Deferred Charges		
Income taxes and interest paid on assessments under appeal (note 6)	190,946	190,946
Exploration and administrative expenditures deferred	2,920,206	1,536,531
	3,111,152	1,727,477
	<u>\$12,401,687</u>	<u>\$ 3,138,922</u>
LIABILITIES AND SHAREHOLDERS' EQUITY		
Current Liabilities		
Accounts payable and accrued liabilities	\$ 622,884	\$ 119,502
Short term loans	1,530,000	
	<u>2,152,884</u>	<u>119,502</u>
Shareholders' Equity		
Capital stock (notes 7 and 8)		
Authorized — 6,000,000 shares of \$1 each		
Issued — 5,466,673 shares (1970 — 4,481,485 shares)	5,466,673	4,481,485
Contributed surplus	4,517,220	(1,762,156)
	9,983,893	2,719,329
Retained earnings	264,910	300,091
	10,248,803	3,019,420
	<u>\$12,401,687</u>	<u>\$ 3,138,922</u>

Approved by the Board

M. McCARTHY, Director

J. V. McPARLAND, Director

Auditors' Report

1971

To the Shareholders of
Tara Exploration and Development Company Limited

We have examined the consolidated balance sheet of Tara Exploration and Development Company Limited and its wholly owned subsidiary companies as at December 31, 1971 and the consolidated statements of exploration and administrative expenditures deferred, retained earnings, contributed surplus and source and application of funds for the year then ended. Our examination of the financial statements of Tara Exploration and Development Company Limited (the parent company) included a general review of the accounting procedures and such tests of accounting records and other supporting evidence as we considered necessary in the circumstances. With respect to the subsidiary companies, of which we are not the auditors, we have carried out such enquiries and examinations as we considered necessary in order to accept for purposes of consolidation the reports of their auditors.

In our opinion these consolidated financial statements present fairly the financial position of the companies as at December 31, 1971 and the results of their operations and the source and application of their funds for the year then ended, in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

THORNE, GUNN, HELLIWELL & CHRISTENSON,
Chartered Accountants.

Toronto, Canada, February 25, 1972.

Consolidated Statement of Exploration and Administrative Expenditures Deferred

YEAR ENDED DECEMBER 31, 1971
with comparative figures for 1970
(Expressed in Canadian dollars)

Exploration	1971	1970
Salaries and wages	\$ 73,130	\$ 22,965
General exploration	83,390	95,551
Diamond drilling	810,865	185,643
Feasibility studies	185,042	
Assaying	61,844	
Maps and drafting	16,771	8,202
	<u>1,231,042</u>	<u>312,361</u>
Administrative and General		
Rent and office expenses	44,515	13,706
Professional fees and expenses	45,749	29,435
Travel	64,673	7,078
Shareholders' information and public relations	79,159	11,855
Listing and share transfer expenses	34,446	1,706
Interest	15,108	
Miscellaneous	22,926	4,147
	<u>306,586</u>	<u>67,927</u>
	<u>1,537,628</u>	<u>380,288</u>
Deduct		
Dividends received	112,763	
Interest earned, less Irish income tax	59,707	15,156
Share of net income from oil participations	16,340	14,801
Adjustment on currency conversion	(70,038)	
	<u>118,772</u>	<u>29,957</u>
Expenditures (net) for the year	1,418,856	350,331
Balance deferred at beginning of year	1,536,531	1,226,274
	<u>2,955,387</u>	<u>1,576,605</u>
Deduct write-off of deferred expenditures applicable to prospecting licenses surrendered	35,181	40,074
Balance deferred at end of year	<u>\$ 2,920,206</u>	<u>\$ 1,536,531</u>

Consolidated Statement of Retained Earnings

YEAR ENDED DECEMBER 31, 1971
with comparative figures for 1970
(Expressed in Canadian dollars)

	1971	1970
Balance at beginning of year	\$ 300,091	\$ 344,050
Less amounts written off		
Deferred exploration and administrative expenditures applicable to prospecting licenses surrendered	35,181	40,074
Organization expenses	35,181	3,885
		43,959
Balance at end of year	\$ 264,910	\$ 300,091

Consolidated Statement of Contributed Surplus

YEAR ENDED DECEMBER 31, 1971
with comparative figures for 1970
(Expressed in Canadian dollars)

	1971	1970
Balance at beginning of year (discount less premium on shares)	\$(1,762,156)	\$(2,322,500)
Premium (net of discount) on shares issued (note 7)		
For cash	2,345,935	560,344
For shares in Northgate Exploration Limited	3,933,441	
Balance at end of year (in 1970, discount less premium on shares)	\$ 4,517,220	\$(1,762,156)

Consolidated Statement of Source and Application of Funds

YEAR ENDED DECEMBER 31, 1971
with comparative figures for 1970
(Expressed in Canadian dollars)

Source of Funds	1971	1970
Issue of shares (note 7)		
For cash	\$ 2,929,755	\$ 991,824
For shares in Northgate Exploration Limited	4,334,809	
	7,264,564	991,824
Application of Funds		
Exploration and administrative expenditures (net)	1,418,856	350,331
Surface rights, buildings and equipment	3,619,974	1,426
Investments		
Northgate Exploration Limited (note 3)	4,339,826	
Other companies	38,717	50,151
	9,417,373	401,908
Increase (decrease) in working capital position	(2,152,809)	589,916
Working capital at beginning of year	920,236	330,320
Working capital (deficiency) at end of year	\$(1,232,573)	\$ 920,236

Notes to Consolidated Financial Statements

DECEMBER 31, 1971

(Expressed in Canadian dollars)

1. Subsidiary Companies

The consolidated financial statements include the wholly owned subsidiary companies, Tara Mines Limited and Tara Prospecting Limited. These subsidiary companies were formed by Tara Exploration and acquired their assets during 1971 by transfer from Tara Exploration, the parent company.

2. Currency Conversion

Current assets and liabilities held in Ireland are converted to Canadian dollars at December 31, 1971 and December 31, 1970 at the approximate rates of exchange prevailing at those dates. Other assets and deferred charges, including exploration and administrative expenditures, are converted at the approximate rates prevailing when the expenditures were incurred.

3. Investment in Northgate Exploration Limited

By a transaction approved by shareholders on June 23, 1971, Tara Exploration issued 401,368 shares of its capital stock in exchange for 501,714 shares of Northgate Exploration Limited, on the basis of 4 Tara Exploration shares for each 5 Northgate shares. The Northgate shares acquired were valued at \$4,334,809 based on a price of \$8.64 per share, being 90% of the quoted market price of Northgate shares on May 19, 1971, the day the offer to acquire the Northgate shares was made, plus additional expenses of acquiring the shares of \$5,017. The quoted market value of the shares in Northgate was \$2,383,000 at December 31, 1971. However, because of the number of shares held, the quoted market value is not necessarily indicative of their realizable value.

4. Investment in Other Companies

	1971	1970
2,040,000 shares in Smelter Corporation of Ireland Limited (30% interest)	\$ 131,566	\$ 131,566
250,000 shares in Avoca Mines Canada Limited	153,037	153,037
	284,603	284,603
Advances to Smelter Corporation of Ireland Limited	88,868	50,151
	<u>\$ 373,471</u>	<u>\$ 334,754</u>

The quoted market value of the 250,000 shares in Avoca Mines Canada Limited amounted to \$150,000 at December 31, 1971 and \$177,500 at December 31, 1970. There is no quoted market value for shares of Smelter Corporation of Ireland Limited.

5. Navan Orebody

The Navan orebody is located in lands defined in each of:

- Valid and exclusive prospecting licences issued to the company by the Minister for Industry and Commerce for Ireland.
- A Minerals Acquisition Order made on March 15, 1971 by the Minister under the Minerals Development Act, whereby all minerals, not previously vested in the State, are vested in the Minister.
- Written undertakings by the Minister on April 1, 1971 and August 20, 1971 that, upon fulfilling the usual conditions, a State Mining Lease will be issued to Tara.

Court proceedings have been issued against the Minister for Industry and Commerce and the Attorney General seeking a Declaration that the Minerals Acquisition Order was invalid, and of no effect in so far as it purported to acquire the minerals under lands belonging to the Plaintiffs in the proceedings. While the company is not a party to these proceedings it has nevertheless been advised by Counsel that the Minerals Acquisition Order is valid.

6. Income Taxes

The company has been successful in its appeal to the Exchequer Court of Canada against income taxes assessed with respect to gains on sales of investments realized in prior periods. However, the Minister of National Revenue has appealed the decision.

7. Capital Stock

Shares of the company's capital stock have been issued as follows:

	Proceeds Credited To		
	Capital stock	Contributed Surplus	Total
In 1971			
582,520 shares for cash, pursuant to an underwriting agreement entered into in 1970	\$ 582,520	\$2,346,533	\$2,929,053
401,368 shares for shares in Northgate Exploration Limited (note 3)	401,368	3,933,441	4,334,809
1,300 shares for cash, on exercise of employees' stock options	1,300	(598)	702
<u>985,188 shares</u>	<u>\$ 985,188</u>	<u>\$6,279,376</u>	<u>\$7,264,564</u>
In 1970			
417,480 shares for cash, pursuant to the 1970 underwriting agreement	\$ 417,480	\$ 566,784	\$ 984,264
14,000 shares for cash, on exercise of employees' stock options	14,000	(6,440)	7,560
<u>431,480 shares</u>	<u>\$ 431,480</u>	<u>\$ 560,344</u>	<u>\$ 991,824</u>

8. Employees' Stock Options

In accordance with an employees' stock option plan adopted in 1969 and amended in 1971, 100,000 shares were set aside for future purchase under options to be granted at prices representing 90% of the market value of the shares on the dates the options are granted. Pursuant to this plan

- (a) Options were granted in 1971 on 18,000 shares at \$8.60 per share (1970 on 33,500 shares at 54¢ per share);
- (b) Options were exercised in 1971 on 1,300 shares at 54¢ per share (1970 on 14,000 shares at 54¢ per share); and
- (c) At December 31, 1971 options were outstanding as follows:

No. of shares	Price per share	Exercisable
16,200	\$.54	May 1, 1971 to April 30, 1973
18,000	8.60	May 1, 1971 to April 30, 1974

9. Remuneration of Directors and Senior Officers

Direct remuneration of the company's directors and senior officers (as defined by The Business Corporations Act, 1970) amounts to \$56,180 for the year ended December 31, 1971 (1970 — \$34,010).

10. Reclassification

The 1970 comparative figures have been reclassified on the basis of the 1971 financial statement presentation.

**ANNUAL
REPORT**

1971

FOR THE YEAR ENDED DECEMBER 31

Directors

SYLVESTER P. BOLAND, Dublin, Ireland
CHARLES CARVILL, Newry, Northern Ireland
JAMES HANRATTY, Newry, Northern Ireland
PATRICK J. HUGHES, Dublin, Ireland
MICHAEL McCARTHY, Ballinasloe, Ireland
JOSEPH V. McPARLAND, Newry, Northern Ireland
MURROGH V. OBRIEN, Dublin, Ireland

Officers

MICHAEL McCARTHY, President
MURROGH V. OBRIEN, Executive
Vice-President and General Manager
DR. OLIVER C. WALDRON, Vice-President and
Deputy General Manager
SYLVESTER P. BOLAND, Vice-President
MATTHEW GILROY, Vice-President
JOSEPH V. McPARLAND, Secretary-Treasurer

Nominee Directors

MATTHEW GILROY
HUGH MURPHY
PATRICK J. MURPHY
ANTHONY J. F. O'REILLY
DR. OLIVER C. WALDRON

Auditors

Thorne, Gunn, Helliwell & Christenson

Solicitors

Fasken & Calvin, Toronto, Canada
McCann, FitzGerald, Roche & Dudley,
Dublin, Ireland

Registrar and Transfer Agent

Crown Trust Company
Toronto, Ontario

Executive Office

162 Clontarf Road
Dublin, Ireland

**Mine Administrative Office
and Information Centre**

Railway Street, Navan
County Meath, Ireland

Registered Office

Suite 2602, Royal Trust Tower
P.O. Box 27, Toronto-Dominion Centre
Toronto 111, Canada.

TARA MINES LIMITED
WHOLLY OWNED SUBSIDIARY

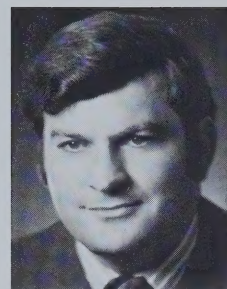
MICHAEL McCARTHY, Director
MURROGH V. OBRIEN, Director
HUGH MURPHY, Director
PATRICK J. MURPHY, Director
RICHARD F. DOWN, Manager
JOHN TULLY, Secretary
WILLIAM DALLAS, Conservation Manager



Michael McCarthy
President



Murrough V. O'Brien
Executive Vice-President and General Manager



Dr. Oliver C. Waldron
Vice-President and Deputy General Manager



Matthew Gilroy
Vice-President



Sylvester P. Bolland
Vice-President



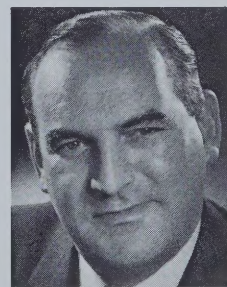
Joseph McParland
Secretary-Treasurer



Charles Carvill
Director



James Hanratty
Director



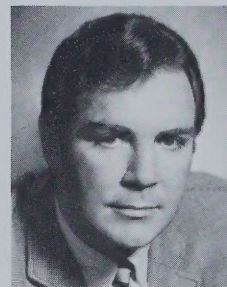
Patrick J. Hughes
Director



Hugh Murphy
Director
Tara Mines Limited



Patrick J. Murphy
Director
Tara Mines Limited



Anthony J. F. O'Reilly
Chairman, Fitzwilliam Resources Limited

